



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/566,787	01/31/2006	Cornelis Van Berkel	GB030124US1	7737

24738 7590 12/21/2007  
PHILIPS ELECTRONICS NORTH AMERICA CORPORATION  
INTELLECTUAL PROPERTY & STANDARDS  
370 W. TRIMBLE ROAD MS 91/MG  
SAN JOSE, CA 95131

EXAMINER

FINEMAN, LEE A

ART UNIT	PAPER NUMBER
----------	--------------

2872

MAIL DATE	DELIVERY MODE
-----------	---------------

12/21/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

10/566,787

Applicant(s)

VAN BERKEL ET AL.

Examiner

Lee Fineman

Art Unit

2872

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 January 2006 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. ____                                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>1/31/06</u> .   | 6) <input type="checkbox"/> Other: ____                           |

## **DETAILED ACTION**

### ***Drawings***

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: perceived pitch L.
2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference character “80” has been used to designate both the diffuser and the typical angular diffusion profile.
3. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Specification***

4. The abstract of the disclosure is objected to because of use of legal phraseology, such as “comprises.” Further, the reference “(&quest;0)” (see last line of abstract) does not make sense and should be clarified. Correction is required. See MPEP § 608.01(b).

*Claim Rejections - 35 USC § 102*

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1-2 are rejected under 35 U.S.C. 102(b) as being anticipated by Shinomiya, JP 06-265891 A.

Regarding claim 1, Shinomiya discloses in fig. 3 an electrically controllable light diffuser comprising: an optical medium (3) and an electro-optic medium (4) arranged with an effective optical interface between a first surface of the optical medium and a first surface of the electro-optic medium and transparent electrodes (5) arranged for providing an electric field across the electro-optic medium so as to allow control of the refractive index of the electro-optic medium by application or non-application of an electric field across the electro-optic medium (see at least the abstract), wherein one of the first surface of the optical medium and the first surface of the electro-optic medium is structured with a surface profile (at 3a), the surface profile comprising plural surface angles such that (i) when the refractive index of the electro-optic medium is controlled by application or non-application of an electric field to be substantially equal to the refractive index of the optical medium there is substantially no refraction arising from the effective optical interface between the first surface of the optical medium and the first surface of the electro-optic medium (fig. 3, bottom half of figure; also see section [0044] of supplied machine translation) and such that (ii) when the refractive index of the electro-optic medium is

controlled by application or non-application of an electric field to be different from the refractive index of the optical medium refraction does take place at the effective optical interface between the first surface of the optical medium and the first surface of the electro-optic medium and, by virtue of there being plural surface angles, the refraction directs light to a corresponding plurality of angles thereby providing a diffusion effect (fig. 3, top half of figure; also see section [0044] of supplied machine translation).

Regarding claim 2, Shinomiya further discloses wherein the plural surface angles are distributed differently in different surface directions such that light is diffused to different extents in different surface directions (fig. 3).

### *Claim Rejections - 35 USC § 103*

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 5-9 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Van Berkel, US 2003/0011884 A1 in view of Shinomiya, JP 06-265891 A.

Regarding claims 5, 6 and 8, Van Berkel discloses in fig. 8 an autostereoscopic display device, comprising: an array of sub-pixels or pixels (12), directing means (15), which is a lenticular sheet, comprising a plurality of directing elements (16, see fig. 2), which are lenticular elements, groups of the sub-pixels or pixels, each group comprising plural sub-pixels or pixels, being arranged in correspondence with respective directing elements (see fig. 6) and an

electrically controllable diffuser (80), the electrically controllable diffuser comprising: an optical medium (page 5, section [0053], also see, e.g., 93 in fig. 9) and an electro-optic medium (page 5, section [0053], also see, e.g., 95 in fig. 9) arranged with an effective optical interface between a first surface of the optical medium and a first surface of the electro-optic medium, transparent electrodes arranged for providing an electric field across the electro-optic medium so as to allow control of the of the electro-optic medium by application or non-application of an electric field across the electro-optic medium the sub-pixels or pixels, the directing means, and the electrically controllable diffuser being arranged such that: when the diffuser is in the non-diffusing mode, light from different sub-pixels or pixels within a group is directed in different directions by the corresponding directing element, thereby providing a 3D mode (page 5, section [0053]); and when the diffuser is in the diffusing mode, light from different sub-pixels or pixels within a group is mixed (page 5, section [0053]), wherein in the diffusing mode the extent of diffusion is sufficient to provide sufficient mixing to provide a substantially 2D image (page 5, section [0053]). Van Berkel disclose the claimed invention except for explicitly disclosing wherein transparent electrodes arranged for providing an electric field across the electro-optic medium so as to allow control of the refractive index of the electro- optic medium by application or non-application of an electric field across the electro-optic medium the sub-pixels or pixels, the directing means, and the electrically controllable diffuser being arranged such that: wherein one of the first surface of the optical medium and the first surface of the electro-optic medium is structured with a surface profile, the surface profile comprising plural surface angles such that (i) when the refractive index of the electro- optic medium is controlled by application or non-application of an electric field to be substantially equal to the refractive index of the optical

medium there is substantially no refraction arising from the effective optical interface between the first surface of the optical medium and the first surface of the electro-optic medium, thereby providing a non-diffusing mode, and such that (ii) when the refractive index of the electro-optic medium is controlled by application or non-application of an electric field to be different from the refractive index of the optical medium refraction does take place at the effective optical interface between the first surface of the optical medium and the first surface of the electro-optic medium and, by virtue of there being plural surface angles, the refraction directs light to a corresponding plurality of angles thereby providing a diffusion mode. Shinomiya teaches an electrically controllable light diffuser comprising: an optical medium (3) and an electro-optic medium (4) arranged with an effective optical interface between a first surface of the optical medium and a first surface of the electro-optic medium and transparent electrodes (5) arranged for providing an electric field across the electro-optic medium so as to allow control of the refractive index of the electro-optic medium by application or non-application of an electric field across the electro-optic medium (see at least the abstract), wherein one of the first surface of the optical medium and the first surface of the electro-optic medium is structured with a surface profile (at 3a), the surface profile comprising plural surface angles such that (i) when the refractive index of the electro-optic medium is controlled by application or non-application of an electric field to be substantially equal to the refractive index of the optical medium there is substantially no refraction arising from the effective optical interface between the first surface of the optical medium and the first surface of the electro-optic medium (fig. 3, bottom half of figure; also see section [0044] of supplied machine translation) and such that (ii) when the refractive index of the electro-optic medium is controlled by application or non-application of an

electric field to be different from the refractive index of the optical medium refraction does take place at the effective optical interface between the first surface of the optical medium and the first surface of the electro-optic medium and, by virtue of there being plural surface angles, the refraction directs light to a corresponding plurality of angles thereby providing a diffusion effect (fig. 3, top half of figure; also see section [0044] of supplied machine translation). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the diffuser of Shinomiya in the device of Van Berkel to provide fast and accurate light directing control and thereby enable switching from 2D to 3D modes.

Regarding claim 7, Van Berkel in view of Shinomiya as set forth above further disclose wherein in the diffusing mode the extent of diffusion is only sufficient to provide sufficient mixing to provide an image intermediate between 2D and 3D (in at least so far as an intermediate image will happen for some amount of time when switching between the modes).

Regarding claim 9, Van Berkel in view of Shinomiya as set forth above further disclose wherein the sub-pixels or pixels are arrayed in rows and columns (see fig. 6 of Van Berkel); the lenticular elements are arranged substantially parallel with the columns, such that of the sub-pixels or pixels along a row are arranged in correspondence with respective lenticular elements (see fig. 8 of Van Berkel); and the plural surface angles are distributed differently in the row and column directions such that in the diffusing mode light is diffused more in the row direction than in the column direction (in at least so far as there are more surface angles changes in the rows of elements than the columns).

Regarding claim 11, Van Berkel further discloses wherein the electro-optic medium comprises small droplet polymer dispersed liquid crystal (page 5, section [0053]).



9. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shinomiya in view of Van Berkel.

Shinomiya discloses the claimed invention except for wherein the electro-optic medium comprises small droplet polymer dispersed liquid crystal. Van Berkel teaches an electro-optic diffuser (80) wherein the electro-optic medium comprises small droplet polymer dispersed liquid crystal (page 5, section [0053]). It would have been obvious to one of ordinary skill in the art at the time the invention was made to make the electro-optic medium of Shinomiya be small droplet polymer dispersed liquid crystal as taught by Van Berkel as the medium is very commercially available and therefore easy to obtain (Van Berkel, (page 5, section [0053])).

10. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shinomiya in view of Battersby, US 6,069,650.

Shinomiya discloses the claimed invention except for wherein the refractive index of the electro-optic medium is substantially equal to the refractive index of the optical medium when an electric field is applied across the electro-optic medium and the refractive index of the electro-optic medium is different from the refractive index of the optical medium when no electric field is applied across the electro-optic medium. Battersby teaches an electro-optic medium wherein the refractive index of the electro-optic medium is substantially equal to the refractive index of the optical medium when an electric field is applied across the electro-optic medium and the refractive index of the electro-optic medium is different from the refractive index of the optical medium when no electric field is applied across the electro-optic medium (column 5, line53-

column 6, line 6). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the electro-optic material taught by Battersby in the system of Shinomiya as it can appropriately match the refractive indices of the optical medium (Battersby, page 2, line 66-page 3, line 2).

11. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Van Berkel in view of Shinomiya as set forth in claim 5 above and further in view of Battersby.

Van Berkel in view of Shinomiya as set forth in claim 5 above disclose the claimed invention except for wherein the refractive index of the electro-optic medium is substantially equal to the refractive index of the optical medium when an electric field is applied across the electro-optic medium and the refractive index of the electro-optic medium is different from the refractive index of the optical medium when no electric field is applied across the electro-optic medium. Battersby teaches an electro-optic medium wherein the refractive index of the electro-optic medium is substantially equal to the refractive index of the optical medium when an electric field is applied across the electro-optic medium and the refractive index of the electro-optic medium is different from the refractive index of the optical medium when no electric field is applied across the electro-optic medium (column 5, line 53-column 6, line 6). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the electro-optic material taught by Battersby in the system of Van Berkel in view of Shinomiya as it can appropriately match the refractive indices of the optical medium (Battersby, page 2, line 66-page 3, line 2).

*Conclusion*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lee Fineman whose telephone number is (571) 272-2313. The examiner can normally be reached on Monday - Friday 8:00 - 5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephone B. Allen can be reached on (571) 272-2434. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



LAF  
18 December 2007



Stephone B. Allen  
Supervisory Patent Examiner